

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/617,663	FUNAKI ET AL. <i>(initials)</i>	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ling-Siu Choi	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to October 14, 2004.
2.  The allowed claim(s) is/are 1-12.
3.  The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All b)  Some\* c)  None of the:
    1.  Certified copies of the priority documents have been received.
    2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

#### Attachment(s)

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_.
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

## DETAILED ACTION

1. This Office Action is in response to the Amendment and the Declaration of Noriyuki Isobe, both being filed October 14, 2004. Claim 12 has been added and claims 1-12 are now pending, which are drawn to a multi-layer hose.

### ***Allowable Subject Matter***

2. Claims 1-12 are allowed.

3. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Funaki et al. (US 2003/0162923 A1) and Nishi et al. (US 2003/0035914 A1).

The present invention relates to a multi-layer fuel hose comprising

<b>inner layer (I)</b>	polymerized unit (a) based on tetrafluoroethylene
	polymerized units (b) based on ethylene and
	polymerized unit (c) based on itaconic anhydride and/or citraconic anhydride
wherein the molar ratio of (a) / (b) = 20 / 80 - 80 / 20 and the molar ratio of (c) / [(a) + (b)] = 1 / 10,000 - 5 / 100 and which has a volume flow rate = 1 - 1,000 mm <sup>3</sup> /sec	
<b>outer layer (II)</b>	polyamide 11 and/or
	polyamide 12
[terminal amino group concentration] / [terminal carboxyl group contraction] > 1	

(summary of claim 1)

Funaki et al. disclose a fluorocopolymer comprising (A) polymerized units based on tetrafluoroethylene, (B) polymerized units based on ethylene, and (C) polymerized units based on itaconic anhydride or citraconic anhydride, wherein the molar ratio of (A)/(B) is from 20/80 to 80/20; the molar ratio of (C)/[(A) + (B)] is from 1/10000 to 5/100; the volume flow rate of the fluorocopolymer is from 1 to 1000 mm<sup>3</sup>/sec (claim 1). Funaki et al. further disclose that a multilayer laminated hose can be obtained by co-extrusion of the fluorocopolymer and a non-fluorinated polymer, wherein the non-fluorinated polymer is particularly preferred to be polyamide 11 or polyamide 12 ([0007]; [0044]-[0045]; claim 11). Attention is drawn to [0059], wherein polyamide 12 (**3030JLX2**, manufactured by Ube Industries, Ltd.) is used for the non-fluorinated polymer. Funaki et al. also disclose that the fluorocopolymer further contain polymerized units (D) based on CH<sub>2</sub> = CX(CF<sub>2</sub>)<sub>n</sub>Y wherein each of X and Y are independent of each other and is a hydrogen atom or a fluorine atom (claim 4). Funaki et al. furthermore disclose that an electroconductive carbon black is incorporated into the fluorocopolymer to lead to a volume resistivity at most 1 x 10<sup>9</sup> Ω-cm ([0042]). However, Funaki et al. do not teach or fairly suggest a multi-layer hose comprising a polyamide resin having a ratio of [terminal amino group concentration] / [terminal carboxyl group concentration] > 1. Furthermore, in view of the Declaration of Noriyuki Isobe, the ratio of [terminal amino group concentration] / [terminal carboxyl group concentration] for **3030JLX2** is **less than 1**.

Nishi et al. disclose a hose having a laminated structure, comprising an inner layer (A) and outer layer (B), wherein the inner layer (A) is made of

ethylene/tetrafluoroethylene copolymer and outer layer (B) is made of a polyamide resin such as polyamide 12 (**3030 JLX2**, manufactured by Ube Industries, Ltd), the inner layer (A) being adhesive to a outer layer (B) (abstract; Example 2; claim 1). Nishi et al.'914 further disclose the volume resistivity of the ethylene/tetrafluoroethylene copolymer is from 1 to  $10^9 \Omega\text{-cm}$  (claim 4). Nishi et al. further disclose that the inner layer and the outer layer are formed by co-extrusion (claim 12). however, Nishi et al. do not teach or fairly suggest a multi-layer hose comprising (a) itaconic anhydride or citraconic anhydride as a comonomer of ethylene/tetrafluoroethylene copolymer, (b) a polyamide resin having a ratio of [terminal amino group concentration] / [terminal carboxyl group concentration] > 1. Furthermore, in view of the Declaration of Noriyuki Isobe, the ratio of [terminal amino group concentration] / [terminal carboxyl group concentration] for **3030JLX2** is **less than 1**.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098. The examiner can normally be reached on Monday to Friday.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Ling-Siu Choi*  
**LING-SIU CHOI**  
**PRIMARY EXAMINER**

Ling -Siu Choi

November 10, 2004